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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,106	03/23/2004	Yong-Jin Ahn	1293.1278C1	1888
49455	7590	09/09/2005	EXAMINER	
STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			CHOW, LIXI	
			ART UNIT	PAPER NUMBER
			2652	

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/806,106		AHN ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Lixi Chow		2652	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>see note 3</u> .  | 6) <input type="checkbox"/> Other: ____.                                    |

Continuation from note 3: 6/18/04; 3/1/05; 7/21/05; 7/26/05.

### DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 5, and 7-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Ichihara (US 6,396,792).

Referring to claim 1:

Ichihara discloses a method of recording data on an optical recording medium, the method comprising:

generating channel modulated digital data (see Fig. 5, element 26, and Col. 10, lines 39-42);

generating a recording waveform having an erase pattern containing a multi-pulse and a recording pattern in response to the channel modulated digital data (see Figs. 1A-1B, and Col. 11, lines 8-15); and

forming a first level of the channel modulated digital data as a mark and forming a second level of the channel modulated digital data as a space by using the generated recording waveform (see Figs. 1A-1B; first level is Pa and second level is Pc1 in Fig. 1B).

Referring to claim 2:

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Ichihara discloses the method of claim 1, wherein the generating of the channel modulated digital data comprises:

performing a Run Length Limited (RLL)(2, 10) method (Col. 5, lines 40-41 mention the shortest mark being 3tw and the longest mark being 11tw; this suggest RLL (2, 10) method was performed).

Referring to claim 5:

Ichihara discloses the method of claim 1, wherein the generating of the recording waveform comprises:

causing a power level of a leading pulse of the erase pattern to be a high level of the multi-pulse and a power level of a trailing pulse to be a high level of the multi-pulse (see Fig. 1B and Col. 6, line 62 to Col. 7, line 5).

Referring to claim 7:

Ichihara discloses the method of claim 1, wherein the generating of the recording waveform comprises:

causing a power level of a leading pulse of the erase pattern to be a high level of the multi-pulse and a power level of a trailing pulse to be a low level of the multi-pulse (see Fig. 1B and Col. 6, line 62 to Col. 7, line 5; the level of last pulse during erase pattern may be change from Pc2 to Pa after once returning it to the conventionally used Pc level; therefore, the leading pulse of the erase pattern have higher level than the trailing pulse).

Referring to claim 8:

Ichihara discloses the method of claim 1, wherein the generating of the recording waveform comprises:

causing a ratio of a duration time of a high level and another duration time of a low level of the multi-pulse to be substantially 1:1 (see Fig. 1B, pulse width of each level (Pc1, and Pc2) is 0.5 tw).

Referring to claim 9:

Ichihara discloses the method of claim 8, wherein the generating of the recording waveform comprises:

causing the duration time of the high level to be half a clock cycle (see Col. 6, lines 62-64).

Referring to claim 10:

Ichihara discloses the method of claim 8, wherein the generating of the recording waveform comprises:

causing the ratio of the duration time of the high level and the duration time of the low level of the multi-pulse to be m:n where m and n are integers (see Fig. 1B and Col. 6, lines 23-34; Ichihara provides an example for Pc1 and Pc2 to be equal in time width, hence, m equal n).

3. Claims 1, 4, and 11-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Dekker (US Pub. No. 2002/0003762).

Referring to claim 1:

Dekker discloses a method of recording data on an optical recording medium, the method comprising:

generating channel modulated digital data (see Figs. 1A-1B and paragraph [0027]);

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generating a recording waveform having an erase pattern containing a multi-pulse and a recording pattern in response to the channel modulated digital data (see Figs. 1A-1B and paragraph [0028]); and

forming a first level of the channel modulated digital data as a mark and forming a second level of the channel modulated digital data as a space by using the generated recording waveform (see Figs. 1A-1B).

Referring to claim 4:

Dekker discloses the method of claim 1, wherein the generating of the recording waveform comprises:

causing a power level of a leading pulse of the erase pattern to be a low level of the multi-pulse and a power level of a trailing pulse of the erase pulse to be a high level of the multi-pulse (see Figs. 1A-1B, the leading pulse level of erase pattern is lower than the trailing pulse level).

Referring to claim 11:

Dekker discloses the method of claim 1, wherein the generating of the channel modulated digital signal comprises:

forming a first level of an NRZI data signal as the mark and a second level of the NRZI data signal as the space (see Fig. 1A and paragraph [0028]).

Referring to claim 12:

Dekker discloses the method of claim 11, wherein the generating of the recording waveform comprises:

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forming a cooling pulse as a part of the erase pattern (see Fig. 1A, the pulse between multi-pulse 13 and multi-pulse 14 is cooling pulse).

Referring to claim 13:

Dekker discloses the method of claim 12, wherein the generating of the recording waveform comprises:

upon determining whether an ending time of the cooling pulse is less than or greater than  $0.5 T_s$  from a trailing edge of the NRZI data signal, causing a duration time of a leading pulse forming the erase pattern to be over  $0.5 T_s$  (see Fig. 1A, the cooling pulse ending time is greater than  $0.5 T_s$ , and the duration time of a leading pulse in multi-pulse 14 section is over  $0.5 T_s$ ).

Referring to claim 14:

Dekker discloses the method of claim 13, wherein the generating of the recording waveform comprises:

forming a unit pulse of the multi-pulse to have a high level and a low level that are adjusted by the duration time of a leading pulse forming the recording pattern (see Figs. 1A-1B; P2 is different from P1 depending on the duration of the leading pulse of the recording pattern).

Referring to claim 15:

Dekker discloses the method of claim 1, wherein the generating of the recording waveform comprises:

forming the recording pattern having at least two power levels (see Figs. 1A-1B).

Referring to claim 16:

Dekker discloses a method of recording data on an information storage medium, the method comprising:



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generating channel modulated digital data (see Figs. 1A-1B and paragraph [0027]);

generating a recording waveform comprising a recording pattern, an erase pattern having a multi-pulse, and a cooling pulse concatenating the recording and erase patterns, in response to the channel modulated digital data (see Figs. 1A-1B and paragraph [0028]); and

forming a first level of the channel modulated digital data as a mark and forming a second level of the channel modulated digital data as a space by using the generated recording waveform (see paragraph [0028]).

4. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohno et al. (US 5,150,351).

Referring to claim 1:

Ohno et al. disclose a method of recording data on an optical recording medium, the method comprising:

generating channel modulated digital data (see Col. 4, lines 21-39);

generating a recording waveform having an erase pattern containing a multi-pulse and a recording pattern in response to the channel modulated digital data (see Figs. 4(a)-4(c)); and

forming a first level of the channel modulated digital data as a mark and forming a second level of the channel modulated digital data as a space by using the generated recording waveform (see Figs. 4(a)-4(c)).

Referring to claim 6:

Ohno et al. disclose a method of claim 1, wherein the generating of the recording waveform comprises:

causing a power level of a leading pulse of the erase pattern to be a low level of the multi-pulse and a power level of a trailing pulse to be a low level of the multi-pulse (see Ohno et al., Figs. 4(a)-4(c)).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ichihara. See the description of Ichihara in paragraph [0002].

In regards to claim 3, Ichihara discloses all the limitations that are set forth in claim 1 for the reason above in the 102 rejection.

Although Ichihara only perform RLL (2, 10) method for recording data on an optical medium; nevertheless, it would have been obvious to recording data using a conventional RLL (1, 7) method to record data onto a recording medium of Ichihara. Examiner has taken Official Notice that performing a RLL (1, 7) method for recording data on an optical medium is a conventional method used in recording data onto a recording medium (see Tanaka et al., 2002/0001275, for example). One of ordinary skill would have been motivated to do this, since RLL (1, 7) recording method is art recognized equivalence method, and the substitution of a run-length-limited (2, 10) for a run-length-limited (1, 7) is considered an obvious substitution of recording, given the teaching of Ichihara as a whole with the ordinary skill of one in the recording filed art.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lixi Chow whose telephone number is 571-272-7571. The examiner can normally be reached on Mon-Fri, 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LC 8/30/05

A handwritten signature in black ink, appearing to read 'William Klimowicz', written in a cursive style.

**WILLIAM KLIMOWICZ  
PRIMARY EXAMINER**